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Claims

(96)

1. An engineered single chain antibody, which inhibits the activity of DNA gyrase from *M. smegmatis* and *M. tuberculosis*.
- 5 2. The engineered single chain antibody as claimed in claim 1 wherein it contains amino acid sequences for inhibiting the activity of DNA gyrase from *M. smegmatis* and *M. tuberculosis* said amino acid sequences having the Seq. ID # 3 and 4 respectively.
- 10 3. An engineered single chain antibody as claimed in Claim 1 wherein said antibody has a nucleotide sequence shown in Seq. ID # 1.
4. An engineered single chain antibody as claimed in Claim 1 wherein said antibody has an amino acid sequence shown in Seq. ID # 2.
5. A peptide having an amino acid sequence as shown in Seq. ID # 2.
- 15 6. A process for the preparation of an engineered single chain antibody which inhibits the activity of DNA gyrase from *M. smegmatis* and *M. tuberculosis*, said process comprising preparing complimentary DNA (cDNA) from the corresponding hybridoma cell lines which secretes monoclonal antibody, amplifying from said cDNA, DNA fragments encoding variable heavy chain region and light regions of said monoclonal antibody, fusing said variable heavy chain and light chain regions of said DNA fragments, cloning said fused DNA fragment in a plasmid, transforming said plasmid into *E. Coli* host strain, inducing said transformed cells to express said engineered single chain antibody and purifying said engineered single chain antibody from the induced cell lysate.
- 20 7. Monoclonal antibodies, which inhibit DNA gyrase from fluoroquinolone resistant *M. smegmatis* and *M. tuberculosis*.
- 25 8. A plasmid characterised in that it encodes an engineered single chain antibody containing amino acid sequences for inhibiting the activity of DNA gyrase from *M. smegmatis* and *M. tuberculosis*, said amino acid sequences being as shown in Seq. ID # 3 and 4 respectively.

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